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VOLUME VI NUMBER 4

THE ELEMENTARY SCHOOL TEACHER

DECEMBER, 1905

THE TEACHING OF APPLIED DESIGN[1]

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In any attempt to describe the practice of an art the briefest demonstration is of more value than the most elaborate statement. The demonstration can be made concrete and specific, the statement must often be general. Without objective illustration there is a great temptation to elaborate explanation, hence it is that writers who bravely start to treat of performance not infrequently stray from the straight road of practice and lose themselves and their readers in the mazes of theory.

Effort will be made to confine the following discussion to the limitations of the title—the teaching of design. There will be few definitions of elementary principles and it will be assumed that the reader is familiar with the subject's terminology.

ESSENTIALS TO SUCCESSFUL PRACTICE

Design is a technical subject, and some of the difficulties in its teaching rise from its technique. More, however, are born of poor teaching—of a failure on the teacher's part to recognize the factors which in any specific problem determine the steps necessary to its comprehension and solution by the pupil.

A design which is to be applied, must consider both the purpose of its application and the nature of the form it is to decorate.

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[1] Paper read before the meeting of the National Educational Association, July, 1905.

The first question must always be: Is the problem a proper one? Should this form be decorated; and if it should, what shall be the nature of the decoration?

An adequate form of decoration decided upon, one must make the problem plain to the pupil, and set for him the limits within which he is to display his invention and individuality. The greater part of the difficulty experienced by the average teacher arises from her failure to define and definitely to limit the problem which the pupil is to undertake. Success lies in such precise definition.

Ability to design depends in no small measure upon a store of impressions of decorations seen or made. The young designer has but a scanty fund of such pictures in his mental exchequer, and of the few he has, the greater part are reflections of bad examples which everywhere surround him. If he is to do good work, he must be offered many and good illustrations that these may serve to illuminate the problems he is to undertake. Further, it may be said that she is a wise teacher who carefully divides the steps of procedure, and insists that each be developed in turn. Proceeding in such fashion, she has it in her hands to control progress and to enforce critical consideration of each step by each pupil.

The above principles stand as essentials to success in teaching design in elementary schools; summarized they state that:

1. The problem to be developed must be a proper one, i. e., one in which applied design is appropriate.
2. The limitations of the problem must be clearly seen by the teacher and must be precisely and definitely stated to the pupil.
3. Abundant illustrative material must be presented to the child.
4. Every problem must be developed in progressive steps and the pupil must be called upon critically to consider his work at each stage.

THE PROPRIETY OF THE PROBLEM

When designs are applied to constructed forms, the question of the propriety of the problem will be determined by the purpose for which the form is to be used. Simple forms require simple designs; many constructed objects are better without decoration. The question of the material used in the form to be decorated conditions the problem. The elaborate ornament which might serve a satisfactory stamp on a printed page is ill adapted as a problem for leather work, and totally unsuited as a decoration for a wooden model; the refined pattern pleasing when produced on some smooth surface, is often inadequate when duplicated on a coarse canvas or a heavy burlap. The decision as to whether design is to be applied or not must rest with the teacher and not with the child. The former must also determine the nature of the pattern.

THE DEFINITION OF THE PROBLEM

The problem decided upon, the teacher must define it for the child. As a problem it should be stated with the precision of a problem in geometry. Much depends on this. The child is not to be simply told to make a design, but must be informed exactly as to its nature and purpose. He must be prepared to understand both its necessity and fitness. As presented to him, the problem should be the development and refinement of certain space relations. He should be definitely limited in his work, and only within the limits stated, should he be expected or permitted to make personal variation. Unless so advised and restrained he will not be prepared to undertake comprehendingly any individual modification. The greater the opportunity afforded him for specific criticism, the greater the likelihood of his success. Beauty in line is a subtle thing; the beginner will have work enough to secure it in two or three main lines of his pattern. If he attempt this and no more, the teacher can aid him. Should he assay anything savoring of elaboration he is foredoomed to failure.

THE ILLUSTRATION OF THE PROBLEM

Adequate illustrative matter was noted as an essential to success. This is not to be offered to be copied, but to assist in clarifying the problem, in making plain just what is to be attempted. Not only should designs illustrating general principles be offered in the form of good prints or patterns, but others should be presented directly illustrative of the problem which the pupil is to solve.

It is not sufficient that the pupil merely observe these illustrations. He should be led to make an analysis of them that he may understand just what principles are shown and what steps have been taken by the maker of the illustration. Design is largely a matter of recombination. An original pattern is only one in which old forms have been re-used in new and personal ways. The most successful designer is one whose brain is stored with many elements and who is ingenious in their adaptation in novel form. For the child good examples are necessary that he may see how varied a design may be made within given limitations, but the examples offered should not be hung where they will serve as mere copies. It is better that they be analyzed and studied, then removed, that from the immediate background of experience the pupil may draw inspiration for personal practice. Thus good examples are necessary; but more essential still, is the orderly development of the steps or phases through which every design must pass in its proper evolution. That these steps must be understood, it will be well briefly to consider the nature of design and what makes for its successful application.

DESIGN — "PURE" AND "APPLIED"

Design defines the relations which maintain between associated masses. The moment any space is divided by a line, or has introduced into it a spot, masses are formed within it, that moment it becomes a design. The relations of the lines and masses used are expressed in terms of balance and rhythm, variety and unity. Pure design, so called, concerns itself with these terms and their illustration. As principles they should be taught to elementary pupils through practice. They should be presented not as abstractions — as illustrations of theory — but as the grammatical parts of speech of design to be practically learned through the necessity for their employment.

DEFINITION OF APPLIED DESIGN

Applied design concerns itself with a given space which has been divided into masses. The term defines the relations which are developed between the masses so formed. The more harmonious the relation the better the design. Pure design deals with the abstract; applied design involves reality. It offers abstract principles in concrete form: it is objective, and teaches beauty in use. It may, indeed, should, be used in beautifying things of service in the daily life of the pupil. So used it relates itself naturally to the teaching of other subjects of the school curriculum — construction, color and mechanical drawing — giving to their instruction point and interest.

STRUCTURE

The most important element in applied design is structure. Upon structure — the shape and boundaries of the space in which the pattern is to be developed — the nature of the design depends. In every applied design we look to see the structural elements of the space supported by the decorative. No matter how ingenious the use of conventional forms, no matter how striking the lines and smooth the rhythm, no applied design which is structurally weak can be satisfactory.

LINE IN DESIGN

The structure of a design is primarily dependent upon the number and movement of the lines which determine the masses. These lines control the observer's eye. One cannot help looking along them and being directed by them in one way or another. All lines condition movement, and where they parallel one another they strengthen and hasten it. Each additional line assists the eye to look in the direction indicated. This enables the designer to make movements both fast and slow. No line may, therefore, be ignored, nor is one to be added without careful consideration of its part in developing rhythmic relations between itself and other lines or spots.

The designer thus has it in his power to make the observer look where he will. He can lead the eye from one line to another, give strength and simplicity by emphasizing elements that bind together and support the form, and interest by felicitous rhythms and smooth transitions. Conversely, he can cause discomfort by forcing the eye to make abrupt changes, and positive dissatisfaction by leaving it to wander aimlessly in a mass of unrelated forms.

NATURE OF APPLIED DESIGN

Applied design concerns itself with the development of masses on a given surface. No mass can be introduced into a space without creating other masses more or less related, yet distinct. (See Plate VII, 1, 2, 3, 4, Fig. 1.) The simplest of applied designs consists of a single mass introduced within a space. In practice this mass may take the form of a bit of printing upon a card or page or in an ornamental unit placed within a border. In familiar language such unit is spoken of as "the design," but in itself it has no claim to the title. The design is the relation maintained by all the masses of the pattern.

Each separate mass exerts more or less attraction depending upon its size and nature, and upon the number and variety of the subordinate masses which it creates. Every design, therefore, has one or more centers of interest to which the eye is led by the rhythms among the masses. Unity requires that there be but one principal center, though subcenters may be developed. In practice multiple centers are to be avoided as they tend to distract attention, to weaken structure, and to destroy repose.

In the primary division of a space the masses to be developed will depend upon the nature or use for which the design is planned. If a single spot is introduced in a space and the eye grasps easily all the masses formed by the unit, then one center of interest is necessary. If, however, one of the related masses appears disproportionately large, the eye finds it empty and displeasing. That it may be adequately filled and the interests of the pattern balanced it then becomes necessary that a second spot be introduced. (See Plate VII, Fig. 2.)

STEPS IN DEVELOPMENT OF PROBLEM

The first step, in the practical development of any problem, is the creation of the main masses of the pattern. The pupil should be led to see the necessity for this, through the examination of examples based on simple space relationships. Simple book covers and programs will serve excellently for the purpose, while more elaborate patterns should be analyzed to make plain the fact that at base they are mass arrangements.

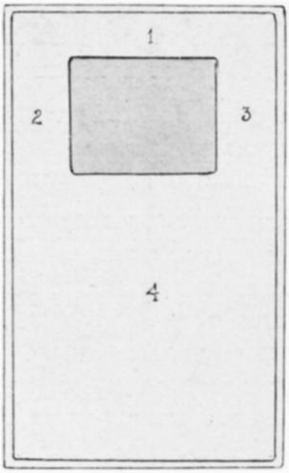

FIG. 1

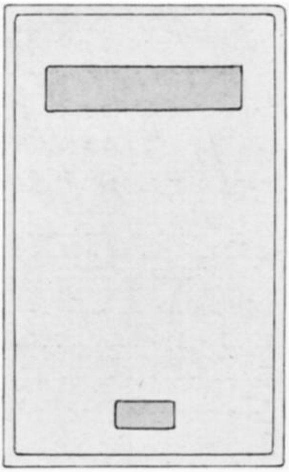

FIG. 2

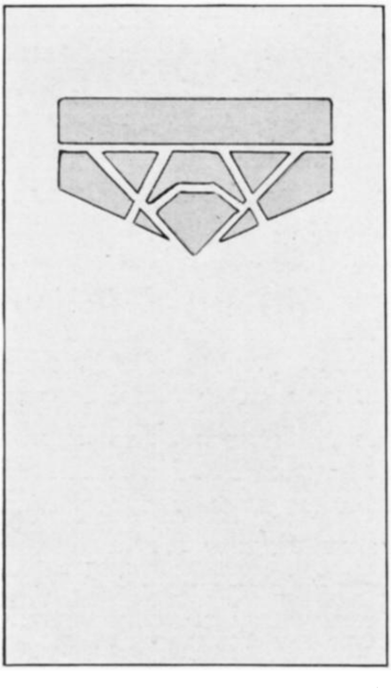

FIG. 3

In some very simple designs no elaboration of the primary mass arrangement is necessary, but in most cases the masses which are introduced to decorate a given space will require further division into spaces which may be filled by conventionalized natural elements. The second and third steps, therefore, in the making of a design must be the division of the decorating mass or masses and the refinement of the elements so formed, while the fourth step should be the introduction of conventionalized forms, if such are to be used, on the basis of the division already planned.

These four steps are to be developed in the order named. The pupil being required: First, to plan the masses of his design; second, to divide into related elements those which are to serve decoratively; third, to refine all the relations through the creating of subtle rhythms; and fourth, to adapt and introduce the subject-material elements it may be desired to present. So taught, he will learn to think as he should think — in masses, learn to work as the practiced designer works — constructively. His eye will become critical of form. He will develop what may be termed the decorative vision, the power to see all forms about him as elements of design. When this sense dawns, both nature and art will appear to him in a new light. He will see design where he has never seen it before; the world will be revealed in pattern.

STEPS IN CLASSROOM PRACTICE

The development of masses.— The first step in any design — the planning of masses — should be prefaced by a word of explanation to the pupils. They should be made to understand that, as a step, this is essential and that in itself, by cutting up the original spaces into forms of various shapes and sizes, it adds interest and results in space relationships. Emphasis is to be laid upon the fact that no matter what the resulting design, it must be characterized by structural qualities which will aid in maintaining the strength of the inclosing form.

Sequence of problems.— The first type of problem should be the simple division of any oblong which fills a given space, as the cover of a small card case or the front of a match box (Plate VIII, Fig. 1, *a*) ; and the next, the introduction of a rectangular mass or stamp into a larger oblong, as a book cover (*c*), in which it forms a center of sufficient interest to make necessary no other element to attract the eye.

The third problem may properly be one which requires a balance of interests, to be secured by the introduction of two or more masses of different sizes and shapes (*d*). This may be followed by one in which the decorating unit is no longer a simple mass, but takes the form of a straplike element which extends about the edges of the inclosing form, and creates one or more panels within (*b*).

After the pupil has had practice in making designs of the foregoing nature he will be prepared to solve problems involving varied masses and panels. Each of the problems presented to a class should be illustrated by two or three typical solutions, and if more than one arrangement is satisfactory, those to which the choice is to be restricted should be indicated, and the pupils further apprised as to the limitations beyond which they should not proceed in making individual variations. All the emphasis will thus fall upon such variation. This is intentional. It is proper that the beginner in design should have the problem presented to him in a very simple and concrete way, and that he be brought to realize that his critical attention must be focused upon one or two important questions in it.

Structural questions.—In designs in which there are two or more masses care should be taken to secure the rhythmic relations of these masses. To insure comprehension of this idea, it will be found helpful to have the pupils illustrate their understanding of rhythm by arranging on the blackboard or at their seats small rectangular blanks of paper within outlines of different size. It is to be noted in this connection, that the constructed forms to which it is at times desired to apply designs may include elements —as binding and corner pieces—which enter into the design and must be included in any scheme of decoration.

In general it may be said that simplicity and strength will be secured by planning but few masses, by emphasizing rhythmic elements, by avoiding weak and uncertain curves, by limiting the

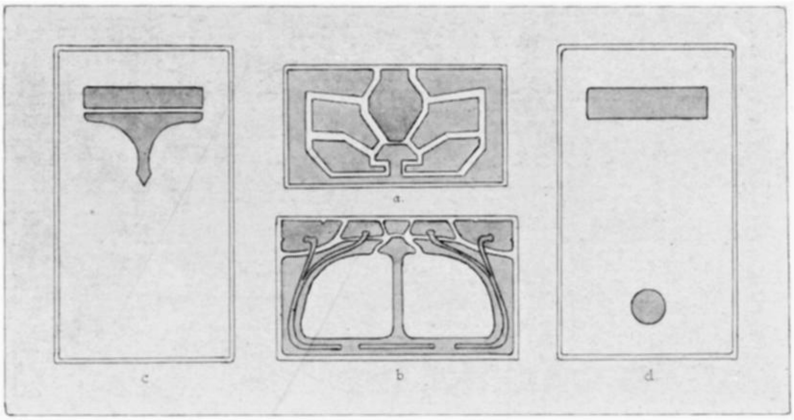

FIG. 1

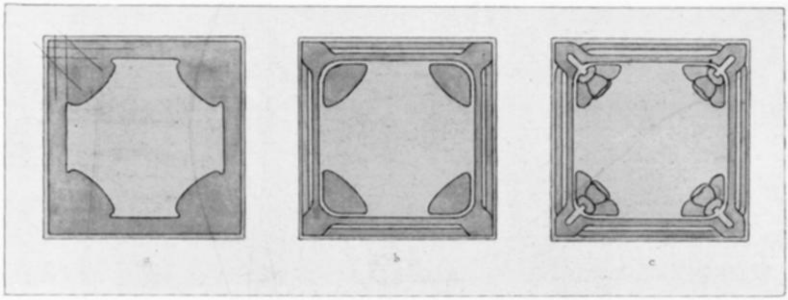

FIG. 2

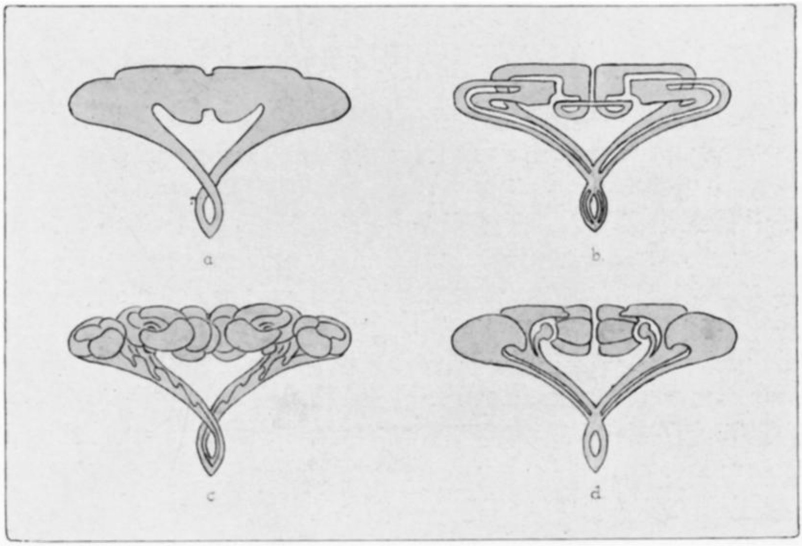

FIG. 3

size of the decorating units in all large spaces, and contrasting such units with large and simple masses. Throughout, the pupil should constantly be made to understand that it is the relation of the masses which constitutes the design. He must learn to think in masses and must learn to work with an eye intent on securing structural beauty as the first element in his pattern.

In the case of advanced pupils practice should be given in determining the masses which appear in completed patterns made by professional designers. These patterns should be presented, and the pupils led to see the mass relationships by closing the eyes until the smaller details are obscured and the basic elements of the design appear.

Throughout the first step in the problem emphasis should be laid on the principles of balance, rhythm, variety, and unity. The chief errors made by the pupils will be in arrangements which violate these principles, and show the design crowded or empty, monotonous or scattered. All possible errors cannot of course be named, but by referring the pupil to good examples and by causing him to analyze his own design in the light of their suggestions, he may be led to detect its shortcomings.

Division of the mass into decorating elements.— Once the size and placing of the decorating mass has been decided upon (as in the scheme for a box top or cushion cover Plate VIII, Fig. *2, a*), there arises the question of its division into elements. The purpose of this is to give additional interest to the mass, and to attract the eye by pleasing lines and varied spaces.

A rhythmic relation of the elements created within the decorating mass is only next in importance to the relation of the mass itself to the other masses of the design. It must be understood that any movement within the mass should serve to relate the elements so created to one another and to the space which the mass fills; all such movements, in other words, must make for the rhythm and structural character of the design as a whole.

In the practical development of minor elements it will be necessary to illustrate to the pupil the desirability of working on constructive and connecting lines, the first supporting the edges of the outline, and the second carrying the eye between opposite elements. Lines of this nature the pupil should plan as tentative divisions. They should appear as mere threads upon the mass. In the more elaborate patterns of the higher grades they may cross one another in various directions, and so form what may be called "the net." (See upper left-hand corner of Plate II, *a.*) This is analogous to the square underlay offered by some teachers as a device to suggest possible divisions of the mass.

It will be necessary in this connection to illustrate the principles of growth, or the rising of one mass out of another. This in the form of radiation may first be shown in single units or spots and later in more complicated elements. Growth within a pattern assists in securing both rhythm and unity.

After the mass has been tentatively divided it should be searched carefully to determine which of the elements that now present themselves are to be retained. These decided upon, the lines which bound them should be strengthened, and the unused lines of the net erased.

If carefully developed, the foregoing steps will leave the pupil with decorative elements rhythmically related and exactly occupying the space of the original mass. To lend variety to the problem it will, as a rule, be better to separate the elements one from another. This may be done by doubling the lines which divide them. Care should be taken in so doing that the spaces or divisions formed are very narrow, that no element which is a part of a mass is left isolated. (See Plate VIII, Fig. 2, *b.*)

In the division noted above, opportunity will offer for refining the lines which bound the elements. Such refinement is to be secured by emphasizing the relations which exist between the separate masses, and by here and there altering boundary lines so that more subtle rhythms may be secured. Throughout this procedure the necessity of securing both harmony and variety of movement must be kept in mind. One of the most frequent errors is a sacrifice of unity by the pupil, that he may gain variety; instead of one characteristic line or movement appearing both in major and minor forms, it is not unusual to find in the latter movements quite unrelated to the general nature of the design. This is to be corrected by causing both large and small elements of the design to reflect the spirit common to the whole pattern;

there is no mixture of styles in the good design. Plate VII, Fig. 3, shows the scattered and disjointed effect which results from overelaboration of the decorative mass, and failure to develop proper structural and connective elements in it. Errors of this nature may frequently be corrected, if the general division lines are good, by uniting the minor elements into two or three well-related forms.

Introduction of subject-matter.—The introduction of conventional forms, or "subject-matter," into the elements planned is the final step to be taken in the development of the more advanced problem. It is a matter of adaptation, however, rather than of conventionalization. Few natural forms can be given to pupils to conventionalize, and it is quite sufficient to the purpose that the latter become skilful in the adaptation of those which are presented in charts, already much simplified. Seed vessels, bud, stem, leaf, and flower elements are all useful for this purpose; insect and animal forms may also be employed. (Plate VIII, Fig. 2, *c.*)

The adaptation of any of these requires that the specific form to be used, be introduced into the spaces which offer in the design without alteration of the general relations of such spaces to the pattern; that is, the mass arrangement may have the conventional elements introduced into it, but such introduction must not interfere to any considerable degree with such arrangement. It is to be noted in this connection that it is possible to introduce subject-matter into a mass arangement which has not had the elements separate one from the other. (Plate VIII, Fig. 3, *c.*) When this is done the design will appear as a solid base, made up of subject-matter, or with such matter superimposed upon the general mass below. Plate VIII, Fig. 3, shows a "stamp," or ornamental unit, consisting of a solid mass *a*. In *b* this mass is shown elaborated into straplike elements; in *c* subject-matter has been arranged completely to fill it, while in *d* it has been developed on the lines of a simple net, and the abstract spots thus formed have been translated into highly conventionalized plant forms.

COLOR

General considerations of color cannot be here undertaken. It may be stated, however, that success in the use of color in design will depend as much upon a nice sense of color values as upon the laws of color harmony. Applied designs, for the most part must partake of a mural character, that is, they must appear to be part of the surface on which they are found. This they can do only when the colors of the different parts of the pattern approximate one another in value. If all are identical in value, the most intense will attract attention, but even intensity will scarcely serve to distinguish the design unless a strong outline is used to separate the decorative mass from the background.

As a rule the colors of the decorating unit must be of approximately the same value, though as a whole they are higher or lower than the background. If such relation is not maintained, the design will not appear flat, but those parts highest in value will stand out in contrast to neighboring elements. In practice a design which lacks harmony, through differences in value, may be bettered by glazing down the highest elements. A skilful designer will sometimes intentionally lay in all parts of his design in intense colors and subsequently glaze them down with repeated washes. This gives a tonal quality to the design not to be obtained otherwise.

The development of critical power.—Taste, it was noted, is the development of a critical judgment through repeated discrimination. As one of the principal ends to be secured in the teaching of design is the development of this power, it should be the practice throughout the solution of every problem to require criticism at the completion of each step. This criticism is to be secured from the class by hanging up before it the best and poorest results secured. These should be reviewed in the light of the principles which have been presented, and the pupils should be required to criticize them in terms of such principles. Specific effort should be made to develop power to judge according to definite standards. It is not sufficient for a pupil to say that a design is bad or that he does not like it; he should be called upon to state why it is good or bad, and if unsatisfactory, how it is to be remedied by alteration in structural nature, in "balance," "rhythm," "variety," or "unity." These terms the pupils should learn to use comprehensively.

SUMMARY

Summarizing, one may say that the foregoing suggestions form a plea for the teaching of definite principles and for their definite application. It is not recommended that many problems be solved during the school term. In many cases all that is possible is the making of one, or perhaps two, designs. These should be for application to some article of use, as there can be no more significant factor in a lesson in design than a knowledge that such lesson is making for the beauty of a thing which is to play a useful part in our every-day surroundings. The problem once decided upon, the four steps named should be taken in order, the masses introduced, developed, refined, and filled with subject-matter. The making of the designs will thus take several lessons, and the development and application of a color scheme as many more. Far better, however, that one such good design be made than many desultory patterns leading to no specific power of execution or of criticism.